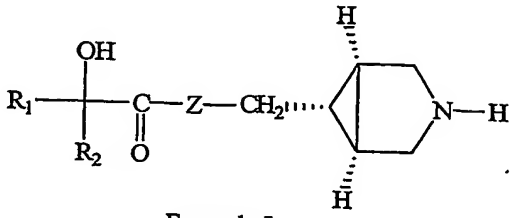
WE CLAIM

1. Compounds having the structure of Formula I:



Formula I

and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, or metabolites, wherein

R_1 and R_2 are independently selected from C_1-C_6 alkyl, C_3-C_7 cycloalkyl or optionally substituted phenyl wherein optional substituent(s) is/are selected from C_1-C_3 alkyl, C_1-C_3 alkoxy and halogen;

Z represents oxygen or NR_3 wherein R_3 represents hydrogen or C_1-C_3 alkyl.

2. A compound selected from

N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-phenyl-2-hydroxy-2-(N-methyl) phenylacetamide (Compound No. 1);

N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-phenyl-2-hydroxy-2-(N-methyl) phenylacetamide tartarate salt (Compound No. 2);

(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-isopropyl-2-hydroxy-2-phenylacetamide (Compound No. 3);

(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-isopropyl-2-hydroxy-2-phenylacetamide hydrochloride salt (Compound No. 4);

(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(3-pentyl)-2-hydroxy-2-phenylacetamide (Compound No. 5);

(2R, 2S)-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-cyclopentyl-2-hydroxy-2-phenylacetic acid ester (Compound No. 6);

(2R)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-cyclopentyl-2-hydroxy-2-(N-methyl) phenylacetamide (Compound No. 7);

(2R)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-cyclopentyl-2-hydroxy-2-(N-methyl) phenylacetamide hydrochloride salt (Compound No. 8);

(2R, 2S)-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-methyl-2-hydroxy-2-phenylacetic acid ester (Compound No. 9);

(2R, 2S)-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-isopropyl-2-hydroxy-2-phenylacetic acid ester (Compound No. 10);

(2R, 2S)-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(3-pentyl)-2-hydroxy-2-phenylacetic acid ester (Compound No. 11);

(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-methyl-2-hydroxy-2-phenylacetamide (Compound No. 12);

(2R)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-isopropyl-2-hydroxy-2-(N-methyl) phenylacetamide (Compound No. 13);

(2R, 2S)-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(m-methylphenyl)-2-hydroxy-2-phenylacetic acid ester (Compound No. 14);

(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(p-fluorophenyl)-2-hydroxy-2-phenylacetamide (Compound No. 15);

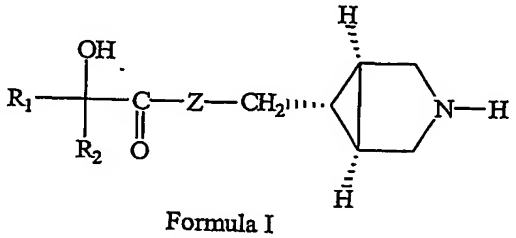
(2R, 2S)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(p-methylphenyl)-2-hydroxy-2-phenylacetamide (Compound No. 16);

(2R)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(p-fluorophenyl)-2-hydroxy-2-(N-methyl) phenylacetamide (Compound No. 17);

(2R)-N-[(1α, 5α, 6α)-3-azabicyclo[3.1.0]hex-6-yl-methyl]-2-(p-methylphenyl)-2-hydroxy-2-(N-methyl) phenylacetamide (Compound No. 18).

3. A pharmaceutical composition comprising a therapeutically effective amount of a compound as defined in claim 1 or 2 together with pharmaceutically acceptable carriers, excipients or diluents.

4. A method for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula I,



Formula I

its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, or metabolites, wherein

R_1 and R_2 are independently selected from C_1-C_6 alkyl, C_3-C_7 cycloalkyl or optionally substituted phenyl wherein optional substituent(s) is/are selected from C_1-C_3 alkyl, C_1-C_3 alkoxy or halogen;

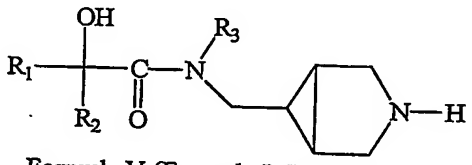
Z represents oxygen or NR_3 wherein R_3 represents hydrogen or C_1-C_3 alkyl.

5. The method according to claim 4 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes or gastrointestinal hyperkinesis.

6. The method for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastroinstestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of the pharmaceutical composition according to claim 3.

7. The method according to claim 6 wherein the disease or disorder urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes or gastrointestinal hyperkinesis.

8. A method of preparing a compound of Formula V,



Formula V (Formula I, Z=NR_3)

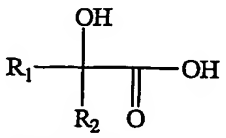
and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs or metabolites, wherein

R_1 and R_2 are independently selected from C_1-C_6 alkyl, C_3-C_7 cycloalkyl or optionally substituted phenyl wherein optional substituent(s) is/are selected from C_1-C_3 alkyl, C_1-C_3 alkoxy or halogen;

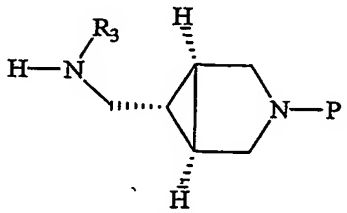
R_3 represents hydrogen or C_1-C_3 alkyl;

said method comprising:

(a) reacting a compound of Formula II with a compound of Formula III

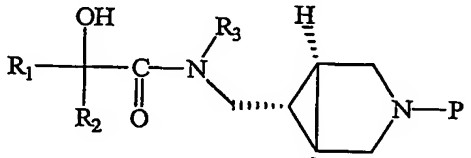


Formula II



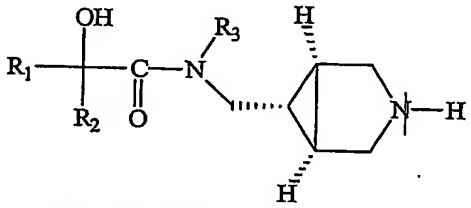
Formula III

to give a protected compound of Formula IV wherein R_1, R_2 and R_3 are as defined, and P is a protecting group for an amino group



Formula IV

(b) deprotecting the compound of Formula IV in the presence of a deprotecting agent to give compound of Formula V wherein R_1, R_2 and R_3 are as defined.



Formula V (Formula I, Z=NR_3)

9. The method of claim 8, wherein P is any protecting group for an amino group and is selected from the group consisting of benzyl and t-butyloxy carbonyl groups.

10. The method of claim 8, wherein the reaction of a compound of Formula II with a compound of Formula III to give a compound of Formula IV is carried out in the presence of N-methylmorpholine and 1-hydroxybenzotriazole and a condensing agent which is selected from 1-(3-dimethyl amino propyl)-3-ethyl carbodiimide hydrochloride (EDC), 1,3-dicyclohexylcarbodiimide (DCC) or 1,8-diazabicyclo [5.4.0]undec-7-ene (DBU).

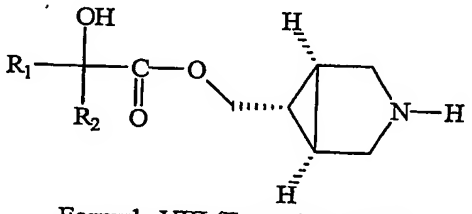
11. The method of claim 8, wherein the reaction of a compound of Formula II with a compound of Formula III is carried out in a suitable polar aprotic solvent selected N,N-dimethylformamide, dimethyl sulfoxide, toluene, xylene and chloroform.

12. The method of claim 8, wherein the reaction of compound of Formula II with a compound of Formula III is carried out at 0-140°C.

13. The method of claim 8, wherein the deprotection of a compound of Formula IV is carried out with a deprotecting agent which is selected from palladium on carbon and hydrogen, ammonium formate and palladium on carbon, trifluoroacetic acid (TFA) or hydrochloric acid.

14. The method of claim 8, wherein the deprotection of a compound of Formula IV to give a compound of Formula V is carried out in a suitable organic solvent selected from methanol, ethanol, tetrahydrofuran or acetonitrile.

15. A method of preparing a compound of Formula VIII,

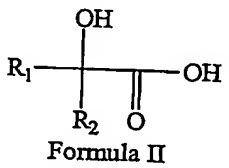


Formula VIII (Formula I, Z=O)

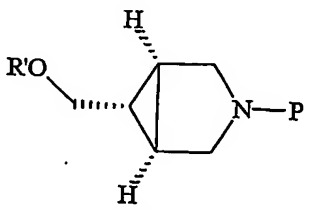
and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs or metabolites, wherein R_1 and R_2 are independently selected from C_1-C_6 alkyl, C_3-C_7 cycloalkyl or optionally substituted phenyl wherein optional substituent(s) is/are selected from C_1-C_3 alkyl, C_1-C_3 alkoxy or halogen;

said method comprising:

(a) reacting a compound of Formula II with a compound of Formula VI (wherein R′ is hydroxy protecting group selected of p-toluene sulfonyl or methane sulfonyl)

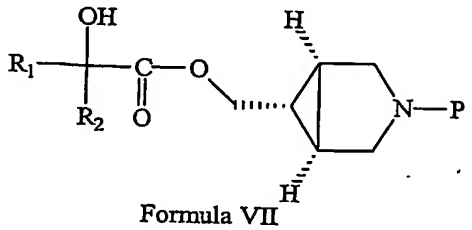


Formula II



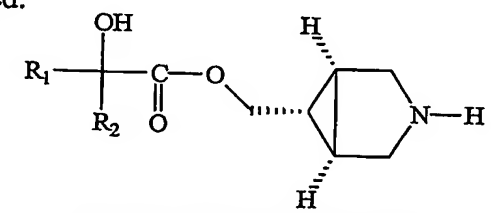
Formula VI

to give a protected compound of Formula VII wherein R_1 and R_2 are as defined, and P is a protecting group for an amino group



Formula VII

(b) deprotecting the compound of Formula VII in the presence of a deprotecting agent to give a compound of Formula VIII wherein R_1 and R_2 are as defined.



Formula VIII (Formula I, Z=O)

16. The method of claim 15, wherein P is any protecting group for an amino group and is selected from benzyl or t-butyloxy carbonyl groups.

17. The method of claim 15, wherein the reaction of a compound of Formula VI with a compound of Formula II to give a compound of Formula VII is carried out in the presence of a condensing agent which is selected from 1,8-diazabicyclo [5.4.0]undec-7-ene (DBU) or 1,4-diazabicyclo[2.2.2]octane (DABCO).

18. The method of claim 15, wherein the reaction of a compound of Formula VI with a compound of Formula II is carried out in a solvent selected from benzene, toluene or xylene.

19. The method of claim 15, wherein the reaction of compound of Formula VI with a compound of Formula II is carried out at 0-140°C.

20. The method of claim 15, wherein the deprotection of a compound of Formula VII to give a compound of Formula VIII is carried out with a deprotecting agent which is selected from palladium on carbon and hydrogen gas or ammonium formate and palladium on carbon.

21. The method of claim 15, wherein the deprotection of a compound of Formula VII to give a compound of Formula VIII is carried out in a suitable organic solvent selected from methanol or ethanol.